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The Maryland Fruit Grower

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NEW OUTLETS FROM RESEARCH

The proposed work to be started on farm by-products in the Eastern Regional Research Laboratory was outlined by Dr. J. J. Willaman, Chief of Biochemistry. Dr. Willaman speaking before the National Planning Committee in Rochester, N. Y. last April stated:

"In 1938, Congress directed the Secretary of Agriculture to establish four regional research laboratories to search for new and wider industrial outlets and markets for farm commodities. You have probably read numerous accounts of these new laboratories in the newspapers, and now you are probably asking, "Well, what are you going to do in the Eastern Laboratory?"

I realize that this group is particularly interested in apples and in finding other outlets for them, and what the new Laboratory intends to do for them. However, I believe you would also be interested in a brief discussion of the origin and general set-up of these Regional Laboratories, so that you will see how the program of research on apples fits into the general scheme.

I shall quote a few sentences from this act—"The Secretary is hereby authorized and directed to establish, equip, and maintain four regional research laboratories, one in each major farm producing area, and at such laboratories, to conduct researches into and to develop new scientific, chemical and technical uses and new and extended markets and outles for farm commodities and products and by-products thereof. Such research and development shall be devoted primarily to those farm commodities in which there are regular or season surpluses, and their products and by-products." That paragraph is the guiding star to which we must keep our research wagon hitched in order to keep it on its intended course.

For many years, and especially during the last few, the Department of Agriculture has been deeply concerned with the problem of surplus corps. Among the agricultural products that have had, with a recurring frequency, the tendency to be produced in surplus quantities are cotton, wheat, corn, peanuts, sweet potatoes, tobacco, fruits and vegetables, milk products, and alfalfa. The searching for new and wider industrial outlets and markets for farm products through research is just one of the several lines of attack on our national farm problem. This means not simply research on specific problems as they arise but a comprehensive, concerted, closely-knit, aggressive program of research—chemical, physical, technological, and economic —all carried on with the specific aim of finding new and extended uses for farm commodities.

Thus, it is proposed to make a technological attack on the surplus problem just as a factory would if it saw a large residue or by-product accumulating. This job is so big, it covers such a big territory, and in a sense it is really such a new venture, that it had to be gone about in a systematic way.

As a preliminary step to the setting up of these laboratories, the Department organized a special staff of workers, thoroughly experienced in research work. The members of this staff visited every State, interviewing representatives of private and public research laboratories, educational institutions and agricultural organizations. There was thus obtained a knowledge of the extent and nature of present research activities in the United States, and also many hundreds of suggestions regarding needed research on varous farm commodities. Such information as this is proving invaluable in avoiding duplication of effort and is guiding us in the selection of specific research projects.

The selection of the cities in which the laboratories are being locatted was based partly on the physical and scientific requirements of the work, partly upon accessibility to the major farm roducing areas, and partly upon the possibility of establishing relationships with the agricultural processing industries.

The Western Regional Laboratory is located near San Francisco; the Southern at New Orleans; the Northern at Peoria, Illinois; and the Eastern at Wyndmoor, just north of Philadelphia. Building operations were begun last summer and they will be completed some time this coming summer.

The Eastern Laboratory is being built on a 32-acre tract of land at Wyndmoor, Pennsylvania, which is just north of Philadelphia. This location is accessible to the great processing industries along the Delaware River, and to reference libraries and research activities at the University of Pennsylvania and the Franklin Institute.

The third step in the organization of the laboratories was to assign particular commodities to each of the laboratories. The Northern Laboratory was given wheat, corn, and agricultural wastes, particularly straw, cornstalks, and cobs. To the Western Laboratory was assigned fruits, vegetables, white potatoes, wheat, and alfalfa. The Southern Laboratory will work on cotton, peanuts, and sweet potatoes. To the Eastern Laboratory was assigned apples, tobacco, milk, white potatoes, vegetables, and animal fats.

This is a formidable and disturbing list. It includes all that we smoke, almost all that we eat, and a good deal of what we wear.

You want to discuss apples, and so do I, because apples are one of my own primary concerns in the Eastern Laboratory.

One unique thing about apples is that while there is a big concentration of orchards in the eastern states and another in the northwest, they are grown in commercial quantities in almost every state in the Union. The question naturally arose as to which laboratory the work on apples should be assigned. The varieties grown in the East differ somewhat from those grown in the West. Most of the apple products, such as cider, vinegar, and pectin, are made in the East. All things considered, it was deemed best to work on apples in both the Western and Eastern Laboratories. It really doesn't make very much difference, since the results of any laboratory will be available for everyone.

There is already a great variety of products serving as outlets for cull and surplus apples, but their production has not kept pace with recent developments. As nearly as 1908, the Department of Agriculture published results of experiments on the preparation of unfermented apple juice. This referred mainly to putting up cider in barrels, but the cider barrel has disappeared

along with the cracker barrel. Modern living necessitates modern packaging. Apple juice must be dressed like its relatives—tomato, citrus, and pineapple juice. If apple juice can be processed to retain indefinitely the flavor of sweet cider a few days from the press, its popularity will be extended from the few months in the fall when good cider is available through the summer months when a thirst-quenching fruit drink is greatly desired.

Methods of concentrating apple juice with recovery of the flavoring constituents have been developed in the laboratory, but they have not received commercial adoption because of certain difficulties in operation. Pilot plant scale experiments are necessary to iron out the kinks and design smoothly operating equipment. The Yearbook for 1912 describes a method of concentrating cider by freezing out the water as ice. One difficulty encountered was the high viscosity of concentrated juice at low temperatures, due to the pectin content and the consequent loss of juice in the discarded ice. Methods of removing the pectin by enzyme treatment should aid in overcoming this difficulty and the design of suitable equipment might render the process commercially feasible.

When the acidity of concentrated apple juice is partially neutralized, a table sirup with an apple flavor is obtained. Unfortunately, present methods produce a dark, cloudy, and unattractive product and may even impair the taste. A wide market might be developed for a table sirup with a good apple flavor. Apple sauce has been used in bread making to produce a quicker fermentation and to prevent ropiness in the dough and to delay staling in the loaf. Certain dried apple sauce products offer possibilities of producing low cost products in convenient form which might extend such a use.

Many bakeries prefer to have apples for pies prepared at a central location where advantages can be had of machinery and proper selection of varieties and grade. Were it not for the darkening and toughening which apple slices undergo during storage in a frozen condition they might be efficiently prepared, stored, and distributed in this condition, with better standardization of the product in convenient form and with the availability of the waste for by-product manufacture.

The first work in this country directing attention to pectin in apple pomace was carried out in the Bureau of Chemistry and published as Bulletin No. 94 in 1905. It was not until after the World War that commercial manufacture was undertaken. Present pectin plants have capacities much larger than that at which they now operate. The chief single outlet is pectin for jelly and jam manufacture, although other uses have been suggested and tried such as that of an emulsifier or gum in flavoring and pharmaceutical preparations, in medicine, in dairy, confectionary, and bakery products, in plastics, in sizing textiles and in quenching steel. Uses might be extended by investigating outlets where jellying properties, and purity for food uses, are not important. This would permit manufacture at a lower cost and greatly broaden the field of application. Uses for derivatives of pectin such as polygalacturonic acid and its salts might be found. Promising methods exist for the large scale manufacture of galacturonic acid from pectin should uses be found for this substance.

May I emphasize that in our work we will not stop at the test tube stage of research. Any findings in the laboratory that look at all promising will be transferred to a pilot plant scale of operation. This is the invariable procedure in industry when a new product is developed. The pilot plant

equipment will be large enough to make a study of the probable type of equipment required, the materials of construction, and the behavior of the product in large bulk. Enough of the product will be made so that a thorough study of its usefulness and marketability can be made. To quote the old maxim: "Make your mistakes in a small plant, and your profits in a big plant."

May I further emphasize that we welcome suggestions and ideas from apple growers and apple processors. The above are our ideas at present. We certainly expect to have more ideas as our work progresses, and as we make contact with the apple industry.

THOSE CULLS

Missouri worked out a cull law, and had it put on the books. It does not have much respect for a cull apple, and so far, it has worked well. Here is a short digest of the Missouri law:

"In brief, the new law requires that all apples exposed for sale in Missouri, regardless of state of origin, whether offered in retail or in wholesale trade, in bulk quantities or in closed packages, must be labeled bearing the name of the variety, the minimum size, and the grade. All apples which fail to meet the requirements of any of the established grades must be conspicuously labeled with a sign bearing the designation "CULLS" in well proportioned letters at least two and one-half inches in height."

"In the interest of uniformity and for convenience in interstate trading, all of the United States standards and grades have been adopted as the official standards and grades for Missouri. In addition, a Missouri State grade for usable "drop" apples has been promulgated by the Commissioner of Agriculture."

"Although it is not required by this Missouri law, the grower's name and address should be included on the labeling of each package or lot of apples. Enforcement of the apple labeling law is performed by authorized agents of the Commissioner of the State Department of Agriculture. Preferably enforcement is of an informational character, but the Department will prosecute wilful violators to the full extent of the law."

It seems, however, that we are going to have confusion if other States enact cull laws, and the interstate laws don't quite agree. Maryland growers agreed at the January meeting, to go on record as favoring a Federal law governing culls. At their Fiftieth Annual Meeting, the Connecticut Pomological Society resolved to ask their State Assembly to add an "ungraded" classification to their present apple packing laws, and asked for a public hearing at which to set a definition of "culls," and also to have the grading laws more rigidly enforced, after an extensive educational campaign to instruct growers regarding the grades and the law. But Tennessee took the bull by the horns, and here's what they had the Attorney General draw up for them to present to the Legislature:—

"Section 1. Be it enacted by the General Assembly of the State of Tennessee, That all apples which are sold, offered or exposed for sale in Tennessess shall be plainly and conspicuously marked with a sign bearing the name of the variety, the minimum size and grade. All apples which fail to meet the requirements of any established grades shall be plainly and conspicuously marked with a sign bearing the word "cull" in well proportioned letters at least two and one-half inches in height. The Commissioner of Agriculture shall exempt from the provisions of this section apples which are marked with and meet the requirements of "grades of the United States Department of Agriculture or well established grades promulgated by other States"; provided that such apples are otherwise marked in accordance with the provisions of this section. Any person violating any of the provisions of this section, shall be deemed guilty of a misdemeanor. In addition, any apples found to be offered or exposed for sale in violation of this section may be ordered temporarily withdrawn from sale by the Commission pending either (2) informal adjustment according to law between the Commissioner or his duly

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authorized representative, and the person in charge of the apples in question, or (b) the filing of a formal complaint, without undue delay, with the District Attorney General.

"Section 2. Be it further enacted, That the Commissioner of Agriculture shall be charged with the enforcement of the provisions of this Act and for that purpose shall have the power:

(a) To enter and inspect personally or through any authorized representative any place within the State of Tennessee where apples are sold, offered or exposed for sale, and to inspect such places and all apples and apple containers found in any such place.

(b) To stop any wagon, truck or other vehicle upon any public street or road or upon any highway of the State for the purpose of inspecting any apples that may be so transported.

(c) To make, publish and enforce such uniform rules and regulations as are necessary for carrying out the provisions of this Act.

Section 3. Be it further enacted, That the provisions of this Act are hereby declared to be severable. If any of its sections, provisions, etc., be held unconstitutional or void, the remainder of the Act shall continue in full force and effect, it being the legislative intent, now hereby declared, that this Act would have been adoped even if such unconstitutional or void matter had not been included therein.

Secion 4. Be it further enacted, That all laws and parts of laws in conflict with this Act be and the same are hereby repealed, and this Act shall take effect from and after its passage, the public welfare requiring it."

The stand taken by Tennessee apple growers is drastic when first considered, but the Vice-President of the Atlantic Commission Company which buys great quantities of their apples stated:—

"We are of the feeling that the offering of poor quality apples is to be numbered among the very important factors that are hurtful to the apple growers and the apple industry; therefore, any proposal which within reason is aimed to improve the fruit offered for sale to the public should receive favorable consideration. The proposed legislation for the State of Tennessee, as outlined, would seem to be a constructive step in this direction. I refer to the marking of the fruit below utility grade in line with the actual grade and quality which the fruit happens to be.

"This will not deny the growers absolute right to offer such fruit nor deny the very low income consumer with her limited means, the opportunity of purchasing such apples, for sometimes there is a possible need to be served by such transactions. However, what it does do is to segregate the better fruit from the poorer, preventing the latter from being a drag upon the price of the former as well as identifying the latter so that there can be less misrepresentation and misunderstanding. Therefore, such a measure appears to us to be a progressive one and for that reason we believe it should receive the support of the fruit industry."

The Tennessee officials who would enforce the act, state that they will try "informational enforcement" at first, and later will prosecute willful or persistent violators.

Spray Materials? Read the Ads

ARGENTINA LIMITS PEAR EXPORTS

The United States imported about 265,000 boxes of pears from Argentina, last year. In "Foreign Fruit Flashes," January 23, 1941, issued by Office of Foreign Agricultural Relations, U. S. D. A., Washington, D. C., it was stated that Argentina had decreed that due to lack of refrigerated shipping space, and necessity of reserving some of this space for grapes, that the Government would authorize shipment of only 300,000 boxes of pears to the United States before April 1. This will stabilize the market for both American and Argentine pears.

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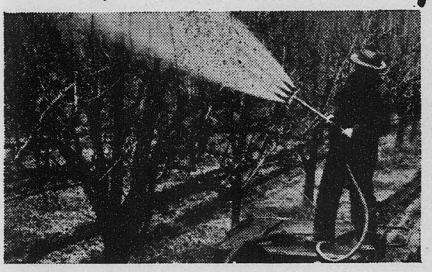

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NATIONAL APPLE PLANNING COMMITTEE

This Committee is composed of the State Committees who have been handling apple surplus sales to the Federal Government. The Chairman of the State Committee acts as delegate to the National Committee meetings. Mr. J. A. Cohill is Maryland's Chairman. The National Committee met in Washington, D. C., on January 7, 1941. Of the 32 States, 24 had representatives present. The following press release gives details of the meetings:

"The National Apple Planning Committee ended a two-day conference in Washington today which was called to discuss current problems of the industry resulting from a loss of major export markets occasioned by war in Europe. The committee, comprised of a grower representative for each of the 32 leading apple producing states, is a permanent body which meets periodically to determine policies concerning major problems. Policies concerning the movement of present storage holdings, improvement of the statistical position of the industry for the future, improvement of domestic consumption, better merchandising practices and foreign imports of apples were discussed at the conference.

The committee recommended that the Surplus Marketing Administration of the Department of Agriculture continue its program of market stabilization through the purpose of export varieties and sizes of apples not ordinarily finding ready acceptance on the domestic market. The committee further recommended that purchases be based on market prices prevailing at the time. It also recommended that distribution of the fruit by the SMA continue as previously to families on relief, and to school children under the free school lunch program, thus reaching consumers, not reached by the commercial outlets of distribution.

According to the latest Government figures, purchases of apples made by the Surplus Marketing Administration for this year to date total nearly 3,440,000 bushels. The quantity purchased indicates that total purchases from the 1940 crop will be less extensive than the total of purchases made from the crop last year. Direct purchases by the SMA from the 1939 crop included more than 9,070,000 bushels of fresh apples and more than 15,-800,000 pounds of dried apples. The apples bought by the SMA were distributed to families on relief and to school children through the school lunch program.

It was pointed out by delegates at the conference that while the 1940 crop would not have been excessive under normal conditions, the curtailment of foreign outlets because of war in the Eastern hemisphere has resulted in storage stocks somewhat above normal for this season and requiring a freer flow of fruit into channels of domestic consumption. The 1940 commercial apple crop was estimated at 117,000,000 bushels, of which approximately 28,-000,000 bushels remained in storage as of January 1, 1941.

Although faced with a heavy supply of apples on hand for the January 1 date, growers have been cheered by the fact that incomes have improved over the last season. The present necessity is to get apples moving in heavy volume for the next two months, the conference reported.

Following the adoption of a resolution concerning foreign imports of apples, a committee was appointed to work on the additional marketing problems presented by such imports. In the resolution the planning committee sought to formulate a policy which would meet the problem of tying the North and South hemispheres closer together, but which at the same time

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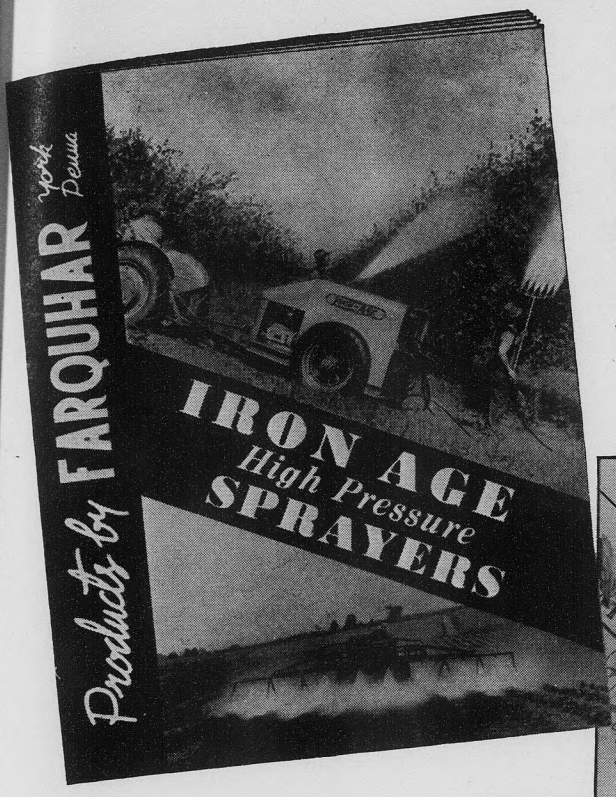

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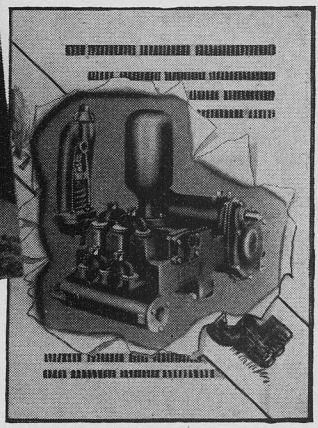

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would prevent indiscriminate dumping of foreign fresh fruits in the United States market.

Presiding over the conference was Kirk L. Keller, chairman of the National Apple Planning Committee, Creve Coeur, Missouri.

Fertilizers? Read the Ads

COLD STORAGE HOLDINGS

The February 1 Cold Storage Report, issued by Agricultural Marketing Service, U.S.D.A. reported the following:

	Feb. 1 5-yr. av. 1936-40	Feb. 1, 1940	Jan. 1., 1941	Feb. 1, 1941
Apples:				
Barrels	288,000	157,000	78,000	62,000
Western Boxes	10,367,000 formerly reported as bu baskets	8,214,000	12,805,000	10,186,000
Eastern Boxes		5,711,000	7,569,000	6,057,000
Bushel Baskets	10,634,000	5,910,000	8,048,000	6,503,000
Totals (bushels)	21,865,000	20,306,000	28,656,000	22,932,000

The Surplus Marketing Administration reported no stocks of apples in storage, February 1.

BRUISED FRUIT

At the Annual Meeting in Hagerstown, it was noted that several speakers stressed the point that we must get our fruit to the consumer in its most attractive condition and also that we must supply fruit to the consumer when and how he wants it. That sack of apples that Truman Nold displayed as a purchase at one of the local stores was a sad but real example of what some consumers are offered, but lots of them are not taking it. What was the main trouble with the apples? Just common and very bad bruising.

In a recent report of the Washington State Apple Commission, it was stated that a two-year survey of Western fruit in the large consuming domestic markets showed over-ripeness and bruise had caused wastage running from 4.3 to 9.1 pounds per box, or about 20c to 40c worth of fruit per box. This survey was substantiated by U. S. Department of Agriculture representatives. So those growers went to work through United Marketers, and drew up uniform handling and packing rules, and had a special inspector help the growers to use these rules. The results were—more careful handling, more uniform sizing, better pack alignment, and almost complete control of packing-bruise and lid-cuts.

We cannot go so far in the East, as to police the entire fruit pack, and we don't know the answer except more care in handling from the tree to the package. The Northwest is even trying out some new designs of the standard box.

ABOUT CONCRETE

According to T. A. H. Miller, Agricultural Engineer U. S. Department of Agriculture, strong water-proof concrete may be made by using one part cement, two parts sand, and three parts gravel or crushed rock. For thick foundations, one part cement, three parts sand, and six parts gravel or crushed rock may be used.

Uncle Natchel says:

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TREE REMOVAL COSTS

With the coming of tree removal benefit payments, growers are wondering what it actually costs to remove an apple tree. If the trees are pulled, the costs will vary with soil, variety root-systems, and type of equipment used. If the trees are simply chopped or sawed off, the cost will vary. Generally, a figure of $26.00 per acre is given, but where it came from, we don't know. Maybe it's about right.

In 1939, 340 apple trees 40 years old were pulled with a 10-ton Caterpillar tractor, rented at $1.50 per hour and using an operator and 4 helpers. For 9 years these trees had cost the grower about $1.25 per tree per year. The cost of pulling, trimming and sawing the trees, burning brush, dragging out stumps, cording and hauling the wood was 81c per tree, or 49c per tree after the cord wood was credited back at $1.00 per cord. When the cost of filling stump holes, Killefer disking and levelling ground was added, the cost was $1.12 per tree, or 68.7c per tree, crediting cord wood. This cost would probably be much less where trees were chopped or sawed and the stumps left to rot.

From reports, a lot of Maryland trees are coming out. Some growers are taking out certain blocks far beyond their payment allowance. Some smaller blocks are being removed completely because they are a liability. Before trees are removed for payment under Soil Conservation Act, the grower must see his county agent and receive prior approval, and must sign up before beginning the work. Maximum payment is $15.00 per acre or 30c and 50c per tree, depending upon size, (no payments for fillers, dead trees or trees under 5 inches diameter) the payments being made upon the basis of acre or trees, whichever is smallest. Total payment is on the basis of credits that the size of farm may earn, with a slight deduction for prorated cost of county administration expenses. The fruit growers worked hard to get this plan worked into Soil Conservation practices, and it is hoped that all growers who have any trees that are not "ringing the bell" will enter into the plan and help themselves and others in cutting down the Maryland cull pile and in pasting a few blow-out patches on their pocketbooks!

OUR ADVERTISERS

Do you read the ads in each issue of The Maryland Fruit Grower? Make it a habit to do so. If you answer any ads, please copy the address as it is given in the ad. Also tell the advertiser that you saw the ad in this paper. Our advertisers spend money for those ads and expect a reasonable return. Thep help to support this paper and the Society. Let's show our appreciation by using their products. They are good. If they weren't, the companies would not be in business very long—and these companies have been doing business for many years.

Diner—"I can't eat this soup."
Waiter—"Sorry sir, I'll call the manager."
Diner—"Mr. Manager, I can't eat this soup."
Manager—"Sorry, sir, I'll call the chef."
Diner—"Mr. Chef, I can't eat this soup."
Chef—"What's wrong with it?"
Diner—"Nothing. I haven't got a spoon."

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SOME REPORTS OF WINTER INJURY

"Illinois Horticulture," January 1941, published by the Illinois Horticultural Society reports the following:

"The mild summer-like weather that prevailed generally throughout the Midwest last fall, up until the week of November 10, did not permit the fruit trees to become sufficiently dormant to be ready to stand the low temperatures that were experienced at the time of the sudden drop in temperature, Novmber 12-15.

The Western part of Illinois, Central and Northern Missouri and Western Iowa have a great amount of very serious damage to apple, peach, cherry and plum trees. In some parts of Iowa it is reported that apple tree damage is as high as 90 per cent kill, and the less hardy fruits, such as peach, cherry and plum are almost 100 per cent killed. This same condition holds true in some localities in Western Missouri.

In Illinois from the southern part of Calhoun County up through Pike and Adams Counties, we are told that considerable damage is being found and apple trees in a good state of vigor are showing about as much injury as trees of lower vitality. Stayman and Rome Beauty trees seem to be, generally, the hardest hit. Peaches, even though not extensively planted in Western Illinois, appear to have suffered seriously. Cherries and plums are also badly hurt. Many young apple orchards of from six to fifteen years of age are showing a high per cent of damage. Some injury to peach trees has been found as far south as Belleville. The fruit buds on both apple and peach do not seem to be seriously hurt. The bark along the base and near the crotches and a short distance out from the crotches seem to show the injury most.

Growers in the western part of the state are much concerned, but the extent of the damage cannot be determined until after the growth has started next spring.

In examining fruit trees for injury it is important that a good sharp knife be used in cutting through the bark at the base of the tree trunks within a few inches of the ground and also in the crotches of the large branches. If the inner bark near the wood is of a dark color down to the wood without green streaks or strips, the injury is likely to be serious. This will be particularly so if the damage extends all the way around the trunk. In fact, the trees may be girdled which would permit them, due to a storage of foods in the twigs and branches, to put out leaves and even bloom next spring after which they may wither and die. Trees so damaged may sometimes be able to develop a crop after which death occurs.

History of horticultural development has shown that off-season freezes have actually resulted in more damage to trees than the midwinter freezes we so frequently have."

HORT SHORTS

Dr. A. Lee Schrader has written some short articles which should be of interest as they show the newer trends in apple marketing.

Waxing of Apples—Apple growers are now giving their apples a beauty treatment which consists of a thin film of vegetable wax which protects the apple from shriveling and deteriorating during storage and after the fruit is placed on the market following storage. This process has been successfully

used on other fruits as well as vegetables during the past few years, but the usage on apples has only been recent, due to the necessity of finding the method experimentally which would produce results. The great advantage that accrues to the apple grower, as well as the consumer, in preventing waste and deterioration of the fruits is obtained by a very small cost, usually 1c or less per bushel. It is hoped that commercial machinery will be improved so that growers in all sections will be able to use this process at a very little cost. With marketing of apples as one of the big problems for the apple grower, this improvement in handling of the fruits will greatly aid in satisfactory marketing of a good product. Nature places a thin wax covering on the apple, but apparently man improves on nature by placing another layer of wax to be sure that the fruit will not shrivel and deteriorate on the market.

Apple Juice Manufacture—During the past few years the development of new methods of flash pasteurization of apple juice together with the development of special cans for canning of such juice has enabled apple growers and others to preserve a fine quality and flavor of apple juice that is being received by consumers everywhere with increasing demand. Much of the juice undergoes a special filtration process which gives the consumer a clear product but other methods also produce a cloudy juice equally palatable. This development will enable growers to place lower grades of fruit on the market in form of juice and will aid greatly in the marketing of the better grades of apples. The increased demand for this juice has caused a number of juice plants to be erected in various parts of the United States and reports of sales are very encouraging, so that apple juice will be taking its place in the diet of the peolpe the year around instead of merely being available as apple cider during the fall months. In fact, this new apple juice is highly superior to the old time farm cider which was made out of cull apples. To reach certain standards the apple juice must be manufactured from clean apples; and by use of the new methods, a pasteurized product is obtained which assures the consumer of a highly sanitary product. The process used in pasteurization requires that the juice be heated for a few seconds at a temperature of 180°F in stainless steel tubing. This very brief heating does not affect the flavor of the juice and enables the packing of such juice in cans or bottles without fear of spoilage over a long period of time. One hotel in Chicago advertises apple juice as the champagne of juices, due to its flavor which is not found in other juices.

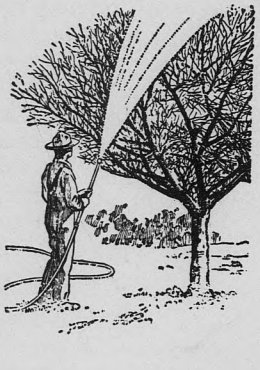
A NOTE ON SPRAYING

Minnesota Fruit Grower, July 1940, reports a Michigan survey where it was found that when apple trees were sprayed from the outside, 60 to 70% of the worms were found to have entered fruits on the cheek facing the tree trunk. An unsprayed tree showed 75% of the entries on the cheek of the fruit facing the outside of the tree. Experience seems to show that at least one-third of the spray gallonage should be applied from underneath the inside portion of the tree.

Spray Machinery? Read the Ads

Farmer—"Do you guarantee this clover seed?"

Salesman—"Positively. If it doesn't come up, bring it back, and we'll refund your money."



What is Your Spray Problem?

Let B.G. Pratt Sprays Help You

SCALE—**Scalecide** is the most effective and safe scale spray ever devised. It also cleans up cankers and improves the general vigor of the trees. Add 1 gallon **Straitar** to each 100 gallons of your **Scalecide** spray for stubborn cases of Oyster Shell, Scurfy scale and Peach Lecanium. For a low cost, safe dormant oil emulsion, use Pratt's **Spra-Cream.** It fills the bill as nothing else will do.

APHIS—Kill dormant rosy aphis eggs with the above **Scalecide** and **Straitar** spray applied in the delayed dormant season; or use 3½ gallons **Spra-Cream** with 1 pound Dow's Dinitro Dry Mix per 100 gallons in the dormant season. One pint D-X added to your prepink or pink spray before the aphis curl the foliage is effective and less expensive than nicotine.

RED MITE—Either **Scalecide** or **Spra-Cream** as a delayed dormant spray controls this troublesome pest. When using **Spra-Cream** with Dinitro it is best to increase the dilution to 4 or 4½ gallons for red mite. Growers using **Spra-Cream** alone in the delayed dormant period for red mite need not stop spraying when the buds burst, but can cut the dilution to 2 gallons and continue spraying with safety and effective results.

MEALY BUG—After thoroughly scraping your trees, either mechanically or with a special gun on your sprayer, spray on a warm day in the dormant season with 6 gallons of **Scalecide** and 3 gallons **Straitar** or 4 gallons **Spra-Cream** and 3½ gallons **Straitar.** Use plenty of force.

B. G. PRATT COMPANY

Manufacturers of Scalecide, Spra-Cream, Straitar, D-X, etc.

50 Church St. **Dept. "F"** **New York, N. Y.**